SDMS US EPA REGION V -1

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3 Bear April 6, 1942

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Believe Bissolid Whishlord is the doctor of the property of the prop had saids the following alterations in the procedure for manufacturing 00-2 which we believe are improvements and suggest that it will be desirable for the other plants to testly our results.

the second of th the falsk the original acquirelles should by this bird are by reducing the temperature of the Step I reaction to the fit the rest of a place to reduce the second of the Chart is a tree protocol special at the second the train of the second of the midily the same effect as the increased agitation recommended emod. Moreonto has found the shower chlorization to be actions has been not real mough besided to determine whather of not recoveries are normal or quality introved.

II. Temperature of Step-II Reaction.

Monsando verifies de Pont findings that the temperature of Step-II reaction is very important in determining the yield of P-2. We find however that the desirable temperature of 130°C is difficult to reach without expessive loss of 3-1 through the condensing system. In most cases reaction temperatures of 122 to 12505 have at used, this temperature being the approximate boiling point of the reaction butch. We wonder whether the low recoveries of P-2 reported by all plants may not be due to similar temperature difficulties

Homsanto would like to re-install accessory piping on the vapor outlets of the condensers which would permit the use of a few pounds pressure in the system which would in turn permit the use of higher temperatures (130°C) without expensive loss of solvent.

III. Seep-II Realurry.

We believe that the use of hot water for reslurrying P-2 and for making in the P-2 reslurry centrifuges is beneficial in reducing the B-4 content of the "Hex". Nore important however, it seems to us that hot water changes the viscosity and characteristics of the P-2 reslutty mixture just enough to make it more satisfactorily bandled through the pumps and pips lines and hence offers possibilities for increasing the expedity of these machines which are now limiting productions.

IV. Redestion of the "Insoluble Matter" in Finished P-3.

Mest of the plants have had some trouble in consistently meeting the specification of 4.25% "Insciable Matter" in the finished product. This "Insciable Matter" has been identified as P-2.

Monatoria has fer sine time believed that the failure to complete the reaction in the Step-III reactions was due to impe of P-2 which ware not properly disintegrated in or shurried with solvent. Originally we proposed either a milling or mitting step before making up the batch.

For about a week us have been trying to accomplish the same purpose by mixing the batch more thoroughly with solvent in the make-up tank. A mixing period of three hours has been generally used (but never less than two hours). Of thirteen batches tried this way all were well below 4.25% insoluble matter and the large majority were around 2.50 to 2.75%.

V. Change in Proportions of Step-III Filtrate.

To reduce the amount of Step-III solvent to be distilled and hence lengthen the life of the evaporators, Monsanto for the last two or three weeks has reduced the proportion of fresh 80% 8-1 charged from 50% fresh (or distilled) 5-1 with 50% filtrate to 33% fresh (or distilled) 5-1 with 67% filtrate. Some batches have been made where 25% fresh and 75% filtrate was used and the results were equal to those obtained with the 50 - 50 mixture.

We believe that within limits this solvent has little effect on the "Insoluble Matter" in the P-3 and propose to use solvent containing 25% fresh or distilled 80% S-1 and 75% filtrate. It is our belief that the 25% - 75% mixture was used by du Pont in the original pilot plant work but was abandoned in the full size plant.

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